Postdoctoral Fellowship under the Marie S. Curie Actions Cofund project "Opening Sphere UAB-CEI to Postdoctoral Fellows (P-Sphere)" Gran Agreement 665919.

Department or Institution involved

Targeting DNA repair in cancer and rare disease therapy

Topic description

Our team research interests are cancer-prone rare genetic syndromes with defective DNA repair with special focus in Fanconi anemia (FA). We also investigate the genetics of familiar cancer syndromes and performs therapeutic research including gene and cell therapy approaches and cell-based drug screening platforms. A long term goal is to understand the mechanisms that maintain genome stability and protect us from disease, cancer, and ageing and to translate this knowledge to develop novel therapeutic and diagnostic strategies. In the frame of this CO-FUND call, the main research topic is the targeting of DNA repair pathways in cancer and/or rare disease therapies, including the identification of:

- genes and drugs that can suppress genome instability in DNA repair patients
- drugs or gene candidates that can be lethal to cancer cells with specific DNA repair defects
- synthetic lethal interactions between DNA repair genes in cancer cells
- DNA repair factors modulating cancer response to chemotherapeutic treatments

Candidates willing to work in this research topic are welcome to apply.

Project supervisor & hosting group

The hosting group is widely recognized for its activities in the area of DNA repair and genome instability Syndromes, Fanconi anemia, clinical genetics, rare diseases and genetic predisposition to cancer.

Jordi Surralles Short bio

With a PhD in Genetics and postdoctoral experience in The Netherlands (Leiden University Medical Center) and Finland (Finnish Institute of Occupational Health), he set up his research team at the UAB where he is currently Full Professor of Genetics. He is Director of the Biobank of DNA Repair Syndromes, Head of the Chromosome Fragility Laboratory Service and team leader at the Center for Biomedical Network Research on Rare Diseases (CIBERER), where he acts as member of the Direction Board and coordinates the Area of Genome Instability and Cancer Predisposition Syndromes. Dr. Surrallés has supervised over 25 research grants awarded from public and private institutions world-wide and participated in clinical trials, several patents and contracts with private foundations and biotech-pharma companies. He has given tens of invited lectures in international meetings. He has published over 100 articles and

book chapters, supervised 25 PhD and Master students. He is reviewer of tens of scientific journals including Science, Nature, Molecular Cell Biology and Blood and Referee of national and international funding agencies including Agence Nationale de la Recherche-ANR (France), Agència de Gestió d'Ajuts Universitaris i de Recerca (AGAUR), ANEP (Ministerio de Ciencia y Tecnología), Cancer Research UK (UK), Commission of the European Union, Member of Selection Board Subcomitte on Genetic Diseases and Cancer ISCIII (Spanish Ministry of Science and Innovation), Duch Cancer Society (The Netherlands), Fanconi Anemia Research Fund Inc. (USA), FIS (Ministerio de Sanidad y Consumo), German-Israeli Fundation for Scientic Research and Development (Germany), INSERM (France), and the French National Cancer Institute (France).

Top 20 selected publications in chronological order) of the last 15 years. *corresponding/first co-author:

- *Surrallés J, et al (1999) American Journal of Human Genetics, 65(6):1617-22
- *Callén, E., (2002). Human Molecular Genetics 11: 439-444.
- *Surrallés J, et al (2002) Proceedings of the National Academy of Sciences USA. 99:10571-10574.
- *Piñeiro E et al (2003) Nucleic Acids Research 31:6733-6740.
- *Surrallés J, et al. (2004) Genes and Development 18 : 1359-1370. R.
- *Callen E and Surrallés J (2004) Mutation Research Reviews 567: 85-104.
- *Callén E, et al. (2005).. Blood 105:1946-9
- Kalb R, et al (2007) Am J Hum Genet 80: 895-910.
- *Bogliolo M, et al (2007). The EMBO J 26:1340-135
- Rio P, et al., (2008). Blood 112:4853-61. EEUU
- Van Zeeburg H, P. et al., (2008). J. Natl. Cancer Inst. 100; 1649-1653.
- Raya A, et al., (2009). Nature 460(7251):53-59
- *Castella M, et al., (2011). Blood 117(14):3759-69
- *Trujillo JP, et al., (2012) Blood. 120(1):86-89.
- *Bogliolo et al. Am J Hum Genet. 2013 May 2;92(5):800-6.
- Liu et al Nature Communications (2014) Jul 7;5:4330.
- Rio P et al (2014) EMBO Molecular Medicine 6(6):835-48
- *Trujillo JP and Surralles (2015) Genetics in Medicine 12. doi: 10.1038/gim
- *Bogliolo and Surrallés* (2015) Curr Opinoion Genet and Develop, 33:32-40
- *Segui, Mina et al., (2015) Gastroenterology, 149(3):563-6.

Founded projects/grants, active in the last 10 years (only as Principal Investigator)

- Telomeres and Radiosensitivity of Individuals (TELOSENS). FIGH-CT-2002-00217. 2002-2005. Programa Euratom, 5th Framework Programme. European Commission. Principal Investigator: Dr. Jordi Surrallés. 95.000 euros.
- DNA damage responses, genomic instability and radiation-induced cancer: the problem of risk at low and protracted doses (RISC-RAD). Euratom Programme, 6th Framework Programme. European Commission. Integrated Project. Contract Number FI6R-CT-2003-508842. 2004-2007. Principal Investigator: Dr. Jordi Surrallés. 146.500 euros.
- EUROFANCOLEN. Phase I/II Gene therapy trial of Fanconi anemia patients with a new Orphan Drug consisting of a lentiviral vector carrying the FANCA gene: A Coordinated International Action. European Commission. 2012-2017. Principal Investigator: Dr. Jordi Surrallés. 260.424 euros.

- National Biobank on DNA Repair Syndromes. 2003. Special Action, Spanish Ministry of Science. Project: SAF2001-5138. Principal Investigator: Dr. Jordi Surrallés. 21.000 euros.
- Biología molecular y factores pronóstico en el síndrome de predisposición al cáncer anemia de Fanconi. Fondo de Investigación Sanitaria FIS. Spanish Ministry of Health. 2002-2005. Project: PI020145. Principal Investigator: Dr. Jordi Surrallés. 85.000 euros.
- Red Temática de Investigación Cooperativa: Aplicaciones de la Biología Molecular y Celular al Diagnóstico y Tratamiento de Enfermos con Anemia de Fanconi. 2003-2006. Ministerio de Sanidad y Consumo. Fondo de Investigación Sanitaria, red G03/073. Principal Investigator: Dr. Jordi Surrallés. 69.095,26 euros.
- Ayuda complementaria al proyecto europeo "Telomeres and radiosensitivity of individuals". Acción Especial MCyT. project: SAF2002-11833-E. Principal Investigator: Dr. Jordi Surrallés. 30.000 euros.
- Ayuda complementaria al proyecto europeo "RISC-RAD". Acción Especial MCyT. Project: SAF2004-00033-E. Principal Investigator: Dr. Jordi Surrallés. 29.300 euros.
- Funciones duales del gen supresor de tumores FANCD2. Ministerio de Ciencia y Tecnologia. Plan Nacional de Biomedicina. Project: SAF2003-00328. 2003-2006. Principal Investigator: Dr. Jordi Surrallés. 120.000 euros.
- La ruta supressora del càncer anènima de Fanconi/BRCA. Fundació La Caixa (programa Oncología). 2005-2007. Principal Investigator: Dr. Jordi Surrallés. 106.000 euros.
- Aplicaciones de la Biología Molecular y Celular al Diagnóstico y Tratamiento de Enfermos con Anemia de Fanconi. Nueva concesión para el año 2006-2007. Ministerio de Sanidad y Consumo. Fondo de Investigación Sanitaria, PI051205. Principal Investigator: Dr. Jordi Surrallés. 20.349 euros.
- Estudios Genéticos y Funcionales del Síndrome de Reparación Anemia de Fanconi. Ministerio de Sanidad y Consumo. Fondo de Investigación Sanitaria. PI061099. Principal Investigator: Dr. Jordi Surrallés. 258.335,00 euros.
- Genética y Biología Molecular del Síndrome de Predisposición al Cáncer Anemia de Fanconi. Ministerio de Ciencia y Tecnologia. Plan Nacional de Biomedicina. Project SAF2006-3440. Principal Investigator: Dr. Jordi Surrallés. 127.534 euros.
- Centro de Investigación Biomédica en Red de Enfermedades Raras (CIBERER). Ministerio de Sanidad y Consumo. 2006-2013. CB06/07/0023. Principal Investigator: Dr. Jordi Surrallés. 1.078.122 euros.
- FANCOGENE: Aplication of Modern Biology in the development of improved diagnostic tools and more efficient therapies for patients with mutated Fanconi anemia/BRCA genes. Principal Investigator and Area Coordinator: Dr. Jordi Surralles. Overall project: 2.000.000 euros. Co-financed by Fundación Genoma España, Pharmamar y Genzyme companies, Universidad Autónoma de Barcelona, Asociación de Enfermos de Anemia de Fanconi, La Fundación CNIO and Centro de Investigación Biomédica en Red de Enfermedades Raras (CIBERER). Grup budget: 240.000 euros.
- Identificación de genes candidatos en anemia de Fanconi por tandem affinity purification y proteómica. INTRA/08/745,1. CIBERER. Principal Investigator: Jordi Surrallés.2008-2009. 34.000 euros.
- Identification of a new Fanconi anemia gene by whole genome SNP analysis. INTRA/09/745,2. CIBERER. Principal Investigator: Jordi Surrallés. 2009.16.000 euros.
- Genética funcional y biologia molecular del sindrome de predisposición al cáncer anemia de Fanconi. SAF2009-11936 (Subprograma GEN): Ministerio de Ciencia e Innovación. 2009-2012. Principal Investigator: Dr. Jordi Surrallés. 394.460 euros.
- Grupos de Investigación consolidados (SGR). Ayuda de soporte al Grupo de Inestabilidad Genómica y Reparación del DNA. Entidad financiadora AGAUR. 2009-2013. Principal Investigator: Jordi Surrallés. 44.720 euros.

- Del Gen al enfermo :Investigación Genética y terapia de la anemia de Fanconi. Ref.11-745/172.02. CIBER de Enfermedades Raras. Principal Investigator: Jordi Surrallés. 2011. 24.000 euros.
- Clinical trial: Ensayo clínico Fase I/II para evaluar la seguridad y eficacia de la movilización y colecta de células CD34+ tras tratamiento con mozobil y filgrastim en pacientes con Anemia de Fanconi para su posterior uso en ensayos de terapia génica. Convocatoria de Ensayos Clinicos Independientes Ministerio de Sanidad 2011. Coordinador del Project: Dr. Cristina Diaz de Heredia (Hospital Vall Hebron). 2012-2013. Ref. EC11-559. FANCOSTEM. Principal Investigator: Dr. Jordi Surralles. Global budget: 343.500 euros. Presupuesto grupo UAB: 22.440 euros.
- Clinical trial: Ensayo clínico Fase I/II para evaluar la seguridad y eficacia de la infusión de células CD34+ autólogas movilizadas con mozobil y filgrastim y transducidas con un vector lentiviral portador del gen FANCA (medicamento huérfano) para pacientes con Anemia de Fanconi del Subtipo A. Convocatoria de Ensayos Clinicos Independientes Ministerio de Sanidad 2011. Coordinador del Proyecto: Dr. Julian Sevilla (Hospital Niño Jesus). 2012-2013. Ref. EC11-060. FANCOLEN. Presupuesto global: 1.050.760 euros. Principal Investigator: Dr. Jordi Surralles. Global budget: 1.000.000 euros Grup budget: 73.440 euros.
- Fanconi anemia: genetic research and therapeutic aplications (FANC-GEN-TE). SAF2012-31881.Convocatoria de ayudas de Proyectos de Investigación Fundamental no orientada, Ministerio de Economía y Competitividad. 2013-2015. Principal Investigator: Dr. Jordi Surrallés. 314.600 euros.
- Regenerative medicine for Fanconi anemia: generation of disease-free patient-specific iPS cells, and iPSC-derived hematopoietic progenitors and platelets. Fundació Marató TV3 (convocatoria 2012). Presupuesto global 400.000 euros. Presupuesto Grupo de la UAB: 100.000 euros 2013-2015. Principal Investigator: Dr. Jordi Surrallés

Planned secondments

Relevant collaborations with external organizations.

We are collaborating with a number of international scientists in the field of Fanconi anemia and related DNA repair disorders such as Xeroderma pigmentosum, breast and colon cancer susceptibility, etc.. We have recent co-join projects and publication with the following teams where the contracted postdoc can plan for a short research stay.

- Orlando Scharer, Stony Brook University, NY, USA
- Detlev Schindler, Wurzburg University, Germany
- Thomas Helleday, Karolinska Institute, Sweden
- Tommo Ogi, Nagasaki University, Japan
- Koos Jaspers, Erasmus University Rotterdam, NK
- Jean Soulier, Sant Louis Hospital, Paris

Pre and postdoc scientists from my lab has performed visiting stays in the laboratories of:

- Agata Smogorzewska, Rockefeller University, NY, USA
- Maria Jasin, Memorial Sloan Kettering Cancer Center, NY, USA
- Minoru Tanaka, Kyoto University, Japan
- Thomas Helleday, Karoliska Institute, Sweden
- Christopher C Mathew, Guy's Hospital, London, UK.
- Maria A Blasco, Spanish National Cancer Center CNIO, Madrid, Spain

Candidate's profile

- A PhD in genetics or in molecular biology in the field of DNA Repair/Genome instability
- Postdoctoral experience in an international renamed DNA repair/Genome instability laboratory
- Publication in top scientific journal in the field
- Experience in gene or drug screenining
- Good communication skills in English (written/spoken)
- Team worker and able to work independently

Research contact:

- Name: Jordi Surralles
- Email: jordi.surralles@uab.es
- Phone: (34+) 935811830

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 665919.